Heber Creeper Railroad Line, Olmstead Bridge
Spanning the Provo River
Provo Vicinity
Utah County
Utah

HAER No. UT-63-C

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25-PROVO.V,
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Rocky Mountain Regional Office
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HISTORIC AMERICAN ENGINEERING RECORD

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Heber Creeper Railroad, Olmstead Bridge

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Location:	Spanning the Provo River along the Heber Creeper Railroad grade. The bridge is oriented generally east to west across the river near the mouth of Provo Canyon just east of Orem, Utah. The Provo River runs in a southwesterly direction below the bridge. The Olmstead Power Plant is located immediately to the northwest of the bridge on the northwest side of the Provo River, and U.S. Highway 189 is located about 100 feet to the south. Power lines pass near but not over the bridge. A concrete retaining wall with sandstone blocks above lines the east bank of the river, beginning about 30 feet above the bridge and continuing several hundred yards downstream. Within five feet of the bridge upstream is a large concrete pipe that crosses the river at the same level and parallel to the bridge. About 15 feet downstream of the bridge is a low concrete diversion dam across the river. This feeds a ditch, having its headgate on the west bank. The bridge has not been impacted by any of the improvements around it. Orem vicinity, Utah County and Heber City vicinity, Wasatch County, Utah
Date of Construction:	Erected at its present location in 1919. Originally, it was a portion of a three-span railroad bridge over the Green River. After that bridge was dismantled, it was modified into a shorter, single-span railroad bridge that was installed over the Price River near Wellington, Utah, in 1901.
Architect:	Unknown
Builder:	Unknown
Original Owners:	Denver and Rio Grande Western Railway Company
Present Owner:	Utah Transportation Commission 4501 South 2700 West Salt Lake City, Utah
Present Use:	Pedestrian footbridge at end of the footpath and bicycle trail in Provo Canyon
Significance:	The Olmstead Bridge is an excellent, unaltered example of a pin connected, steel Howe Truss railroad bridge, typical of the late nineteenth and early twentieth centuries. Although originally constructed and installed at Another location, the bridge still retains integrity of historic location along the Heber Creeper Railroad grade. Because it has been used at three different locations, it typifies the versatility of steel plate bridges and the adaptability of bridge engineering during the time of its principal use. In addition, the bridge has integrity of design, feeling, materials, and workmanship relative to its physical setting and technological context.
Historian:	Jonathon C. Horn, Alpine Archaeological Consultants, Inc., June 1991

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Original plans: Original plans are not known to exist

2. Alterations and additions: A few minor modifications have been made to the bridge. The rails have been removed and a plank surface laid down over the running surface. A telephone or telegraph line bracket has been attached to the westernmost column on the south side of the bridge. This is made of two 2x4-inch boards bolted on either side of the column. It projects southward with several bolts sticking up. A galvanized pipe has been attached to the north edge of the running surface. In order to prevent vehicle entry onto the bridge, a swinging pipe gate has been welded to the west column support brackets. This gate is hinged at the sides and meets in the center, where it is chained and padlocked.

B. Historical Context:

The Olmstead Bridge spans the Provo River along what is known as the Heber Creeper Railroad grade. This grade was originally constructed by the Denver and Rio Grande Railway Company as part of their route between Heber City and Provo, Utah. It was put into operation in 1899. Reference should be made to the historical narrative for the Heber Creeper Railroad, HAER No. UT-63, for additional background information.

PART II. ARCHITECTURAL INFORMATION

A. General Information

1. Architectural Merit and Interest: The Olmstead Bridge is an excellent example of a pin connected, steel Howe Truss railroad bridge, typical of the late nineteenth and early twentieth centuries. Because it has been used at three different locations, it typifies the versatility of steel plate bridges and the adaptability of bridge engineering during the time of its principal use.

2. Condition: Excellent, except for minor deterioration of the running surface and surficial rust.

3. Detailed description: The Olmstead Bridge is a Howe Truss bridge built of riveted steel plates and steel rods. It is 90 feet long and has a 10-foot-wide running surface. The bridge is a single span with its ends resting on abutments on either side of the Provo River. The west abutment consists of four regular courses of rectangular sandstone blocks with concrete mortar. This has been modified by the addition of poured concrete. Both abutments are stepped, so as to accept the end cross frame girders of the bridge.

The running surface of the bridge is supported by a framework of I-beam girders constructed of iron plates and paired riveted angle irons. Four main girders run the length of the bridge and are intersected at regular intervals by six cross frame girders, resulting in division of the bridge into five 18-foot-long frames. Beneath the bridge, the ends of the cross frame girders are connected by horizontal lateral diagonal steel tension members made of square eyebars with turnbuckles for adjustment. These tension members are attached with pins. The cross

frame girders extend out beyond the running surface and serve as anchoring points for the superstructure columns. These columns ar attached to the outside of the cross frame girders and are given additional support by gusset plate knee braces. The columns are constructed of paired steel channel plates separated and connected by plate and angle iron I-beam tie plates near their bases. Similar, but larger, I-beams form the outside diagonal trusses and top beams of the superstructure. All junctions are connected with pins. The open sides of the column I-beams have double lacing, whereas the larger exterior truss and top I-beam have single lacing. The truss I-beams are connected to the outside of the outermost main girders by riveted plates and cross braces. Their bases rest directly on the bridge abutments. Pairs of rectangular eyebars with turnbuckles from crossing lateral diagonal counter rods between the columns on both sides of the bridge. These are connected by pins at the base of the trusses. Transverse struts connect the top of the superstructure. Across the top of the superstructure are four cross members. The two end cross members are constructed in plate and angle iron I-beam fashion but are slightly arched on top. The two central cross members are relatively small plate and angle iron square beams. All four cross members are supported from below by angle iron knee braces. Single, crossing, horizontal transverse counter struts of rectangular eyebars with turnbuckles form sway braces across the top of the superstructure. These are connected by pins at the tops of the columns.

The running surface of the bridge is constructed directly upon the girder framework. A base of 8x8-inch ties set 3 inches apart runs the entire length of the bridge. These have been cut out on the underside so as to fit snugly on the underlying girders. Rails, now removed, were at one time set onto this framework. Along the outer edge of the ties, 8x8-inch posts have been set end to end, bolted to and cut to fit around the ties below, forming a raised rail guard. A layer of 3x8-inch planks has been laid down over the ties between the rail guards in recent years for vehicle and pedestrian traffic. Plans were made in 1990 to give the bridge a new running surface suitable for pedestrian and bicycle traffic, to add safety railings, and to sandblast and paint the bridge. This work will be done in 1991 or 1992.

PART III. SOURCES OF INFORMATION

Hoole, George A. and W. S. Kinne. Structural Members and Connections. New York: McGraw-Hill Book Company, Inc., 1943.

Skinner, Frank W. Types and Details of Bridge Construction, Part II. Plate Girders. New York: McGraw -Hill Publishing Company, 1906.

Wilde, James D. and Billat, Lorna Beth. "A Cultural Resource Inventory of the Proposed SR-189 Upgrade and Realignment in Provo Canyon, from Olmstead to Heber City, Utah and Wasatch Counties, Utah." BYU MPC Technical Series No. 87-49. Provo: Brigham Young University, 1988.

Wintch, Kenneth L. and Christensen, Teri H. "Determination of Eligibility and Finding of Effect for U.S. Highway 189, Utah Valley to Heber Valley, by the Federal Administration, Utah Division, and the Utah Department of Transportation." Salt Lake City: Utah Department of Transportation, 1989.